

REMARKS

A petition to extend the time for response by three (3) months is enclosed herewith.

Claim 12 has been amended. A new independent claim 24 and new dependent claims 25 – 31 depending ultimately from new independent claim 25 have been added. Claims 12 – 31 are currently pending in the present application.

In the Office Action, claims 12-14, 21, and 22 are rejected under 35 U.S.C. §102(b) as being anticipated by Togashi Hitoo et al JP2000-253640. Also, in the Office Action, claims 15-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Togashi Hitoo et al JP2000-253640 in view of Nikano Yasumasa et al JP01-190979. Furthermore, in the Office Action, claim 23 is rejected under 35 U.S.C. §103(a) as being unpatentable over Togashi Hitoo et al JP2000-253640 in view of McGill et al US Patent Application 2003/0173834.

With respect to the prior art rejections of claims 12 - 23, favorable reconsideration is respectfully requested in view of the amendment of claim 12 and the following comments.

Claim 12 of the present application as currently amended recites a linear drive device comprising an excitation winding and an armature body. The excitation winding produces a variable magnetic field and includes an associated magnetic-flux-carrying yoke body having pole surfaces. Additionally, the armature body includes a magnet carrier having at least two permanent magnet parts and an axial oscillation movement being transferable to the at least two permanent magnet parts by the variable magnetic field of the excitation winding,

the magnet carrier including an electrically insulating material at least partially extending into the magnetic field area defined by the pole surfaces of the yoke body and the excitation winding. The electrically insulating material and its disposition to partially extend into the magnetic field area defined by the pole surfaces of the yoke body and the excitation winding is such that the induction of eddy currents adjacent the pole surfaces of the yoke body is reduced.

Togashi Hitoo et al JP2000-253640 discloses a linear vibration motor 10 provided with a stator core 18 constituted of a first magnetic material core 12 having a coil 14 and a second magnetic material core 16 which is arranged facing the core 12 interposing a magnetic air gap 20. The linear vibration motor 10 also includes a movable magnetic body 22 which is arranged in the magnetic air gap 20 and is capable of displacement in the axial direction. The movable magnet body 22 consists of permanent magnets 24, 26 divided into a plurality of segments and insulating thin plates 28 arranged between the divided magnets.

Nikano Yasumasa et al JP01-190979 discloses ferromagnetic metal plates 31 – 38 mounted to magnetic pole surfaces of permanent magnets 10 – 13 of an electromagnetic blower.

McGill et al US Patent Application 2003/0173834 discloses a permanent magnet linear motor connected to a reciprocating free piston compressor. A cylinder 9 is supported by a cylinder spring 14 within a compressor shell 30. A piston 11 is supported radially by a bearing formed by a cylinder bore plus its spring 13 via a spring mount 25.

It is respectively urged that the invention as now recited in claim 12 and claims 13 - 23 depending ultimately therefrom is not anticipated by or obvious from the prior art of record. For example, Togashi Hitoo et al JP2000-253640

discloses insulating thin plates 28 each disposed between a pair of divided magnets. While it appears that these insulating thin plates 28 may insulate each magnet of each respective pair of divided magnets from one another, it is not seen that Togashi Hitoo et al JP2000-253640 discloses or suggests, as recited in claim 12 of the present application as currently amended, an armature for a liner drive motor having an electrically insulating material wherein the electrically insulating material and its disposition to partially extend into the magnetic field area defined by the pole surfaces of the yoke body and the excitation winding operates to substantially avoid an induction of eddy currents adjacent the pole surfaces of the yoke body. For these and other reasons, it is respectfully submitted that none of the prior art of record, either alone or in combination, teach or suggest the subject matter defined by claim 12 and claims 13 - 23 depending ultimately therefrom.

It is also submitted that new independent claim 24 and claims 25 – 31 depending ultimately therefrom patentably define over the prior art of record. New independent claim 24 of the present application recites a linear drive device comprising an excitation winding and an armature body. The excitation winding produces a variable magnetic field having a longitudinal extent along a longitudinal axis and the excitation winding includes an associated magnetic-flux-carrying yoke body having a pair of pole surfaces axially spaced from one another relative to the longitudinal axis. As further recited in new independent claim 24 of the present application, the armature body includes a magnet carrier having a plurality of permanent magnet parts and a pair of electrically insulating portions, the armature body being movable in an axial oscillation movement that is transferable to the at least two permanent magnet parts by the variable magnetic field of the excitation winding. With further regard to the armature of the linear drive device recited in new independent claim 24 of the present application, the pair of electrically insulating portions are axially spaced from one

another relative to the longitudinal axis and at least one of the plurality of permanent parts is disposed axially intermediate the pair of electrically insulating portions. Also, each one of the pair of electrically insulating portions is disposed to at least partially extend into a respective magnetic field area defined by a respective one of the pair of pole surfaces of the yoke body and the excitation winding.

It is respectively urged that the invention as now recited in claim 24 and claims 25 - 31 depending ultimately therefrom is not anticipated by or obvious from the prior art of record. For example, none of Togashi Hitoo et al JP2000-253640, Nikano Yasumasa et al JP01-190979, or McGill et al US Patent Application 2003/0173834 teaches or discloses a linear drive motor having an armature wherein each one of a pair of electrically insulating portions of the armature is disposed to at least partially extend into a respective magnetic field area defined by a respective one of the pair of pole surfaces of a yoke body and an excitation winding.

CONCLUSION

In view of the above, entry of the present Amendment and allowance of claims 12 – 31 are respectfully requested. If the Examiner has any questions regarding this amendment, the Examiner is requested to contact the undersigned. If an extension of time for this paper is required, petition for extension is herewith made.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Russell W. Warnock", written in a cursive style.

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